

**Guide on Nutrition for
Community Dwelling
Older Persons
and Caregivers**

**A Publication of
Nutrition Division
Ministry of Health
2020**



**Nutrition Division
Ministry of Health**

**Guide on Nutrition for Community Dwelling
Older Persons and Caregivers**

ISBN 978-955-3666-93-2

Published by:

**Nutrition Division,
Ministry of Health,
Public Health Complex,
555/5, Elvitigala Mawatha,
Narahenpita.**

With the technical and financial support from World Health
Organization

Printed by:

New Karunadhara Press
No 97, Maligakanda Road,
Colombo 10

Message from the **Director General of Health Services**

The elderly population was estimated to increase approximately to 16% of the total population in Sri Lanka by the end of 2020. Society has an impending responsibility not only to provide better care for them in order to appreciate their service to society as a whole but also to benefit from their vast experience, knowledge, and skills for the betterment of the country.

Nutrition affects the physical and mental health of the elderly hence maintaining proper nutrition habits should be focused more. Malnutrition leads to immunity problems in the elderly making them more prone to infectious diseases. Poor dietary habits and sedentary lifestyle may also contribute to non-communicable diseases such as obesity, diabetes mellitus, cardiovascular disease, and hypertension. If nutritional disorders are prevented, identified early and managed appropriately, the health of many elderly people can be enhanced. This signifies the requirement for appropriate nutrition for these individuals in order to thrive in the society.

This “Guide on Nutrition for Community Dwelling Older Persons and Caregivers” is a comprehensive document formulated by the Nutrition Division of the Ministry of Health together with relevant stakeholders. I highly recommend this publication to be used by older people themselves and anyone caring for the elderly in our community.

Dr Anil Jasinghe
Director General of Health Services
Ministry of Health

Preface

A rapid demographic shift with an ever increasing ageing population signifies the importance of comprehensive care for them. Although taking care of the elderly is a strong cultural nuance which is intertwined with the values of Sri Lankan society, the number of elderly living alone has been steadily increasing over the past few decades. Various nutrition issues and diet related conditions are identified among the elderly making nutrition an area for much needed interventions.

Knowledge on nutrition at an older age and proper dietary practices with an active life style is essential for a healthy life. At present, only a less number of elderly people require assistance for activities of daily living such as cooking and eating. The elderly may enhance their health and quality of life significantly by paying attention to the nutrition. Looking ahead, the Nutrition Division of the Ministry of Health decided to raise the awareness on nutrition and physical activity amongst older people as well as their care givers. As a first step, “The Guide on Nutrition for Community Dwelling Older Persons and Care Givers” was developed which embraces salient aspects of their nutrition. This document is expected to be useful not only for elderly but also for those who are engaged in caring for them in all communities across the island.

We are grateful for experts from the Ministry of Health, Elderly Secretariat, Sri Lanka Medical Nutrition Association and other governmental and non-governmental organizations for their esteemed contribution. We would also like to extend our gratitude and acknowledge the World Health Organization for their technical and financial assistance. We thankfully appreciate the support extended by Dr. Shiromi Maduwage, Consultant Community Physician in the directorate of Youth, Eldery and Disability.

Staff and former Directors of the Nutrition division contributed to this endeavour in all possible ways and their contribution is greatly appreciated. Special thanks go to Dr. J. Mahipala, Dr. E. W. De Silva, Ms. S. Mirihagalla, Ms. C. Illangamge, Ms. R. Semasinghe and Ms. T. Suntharavathany without whom this would not be a success.

Dr. Lakmini Magodaratna
Director (Actg.)
Consultant Community Physician
Nutrition Division
Ministry of Health

Dr. Anoma. C.M. Basnayake
Head – Community Nutrition Unit
Consultant Community Physician
Coordinator for the development of
National Nutrition Quality Standards

Contents

Message from the Director General of Health Services	iii
Preface.....	iv
1. Ageing and nutrition	1
2. Healthy diet helps vitality	1
3. Making smart food choices.....	6
4. Ageing and issues in eating.....	16
5. Enjoy your cooking.....	23
6. Maintaining a healthy weight.....	28
Annexures	33
References.....	39
Contributors	40



1. Ageing and Nutrition

Persons over 60 years of age are considered as older adults or elderly persons and those who are over 80 years are recognized as oldest old. In 2012, elderly population over 60 years in Sri Lanka was 12.4% and it is expected to increase up to 25% by 2041.

As you get old, your muscle mass, bone density and metabolic rate decline therefore; your energy requirement is also reduced. You may have some health issues that you acquired since birth while other health problems may be due to ageing and dietary behaviors. Therefore, good nutrition through correct food choices and eating habits among elderly improve their quality of life.

2. Healthy diet helps vitality

It is important for each and every older person to protect from illnesses and maintain health. Inadequacy of nutrients in diets and practical eating issues due to ageing may cause loss of body weight and muscle mass and functional impairment. On the other hand, elderly are at risk of getting obese as they eat the same quantity of food while reducing the physical activity.

There is a risk of falls leading to fractures, disabilities and even death in older people. This may occur due to micronutrient deficiencies especially Calcium and Vitamin D in early stages of life.

Eating a well balanced diet recommended for your age helps to maintain proper weight while allowing you to stay healthy and active.

A well balanced diet should include variety of food from all food groups in recommended amounts (Annexure 01). We Sri Lankans are fortunate to have wide variety of food choices all around the year. You can find many varieties of food to add to your daily meals from the neighborhood at a low cost.

Box 1

Consume a variety of foods from following food groups

1. Cereals and Starchy foods

- 55% of daily energy requirement should come from this food group.
- Portion size of this food group depends on your health and nutrition status.

2. Vegetables & Green leaves

- At least two vegetables and green leaves need to be consumed every day.
- Vegetables provide vitamins, minerals and fiber protecting you from illnesses.

3. Fish, eggs, meat and pulses

- This food group mainly provides proteins necessary for maintenance of muscle mass and optimal functioning of the body.
- They are a good source of vitamin and minerals too.

4. Fruits

- At least two varieties of fruits are recommended to be included in your daily diet.
- Fruits too provide you with vitamins, minerals, fiber and antioxidants.

5. Dairy Products

- They offer you energy, protein, vitamins and minerals.
- Milk and fermented milk products reduce loss of bone mass.

6. Nuts & oily seeds

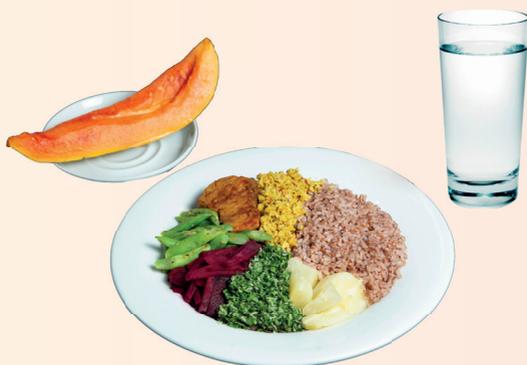
- Fat in nuts and seeds are healthy when you take them in recommended amounts
- They increase good cholesterol (HDL) preventing from heart attacks.
- They are a good source of essential fatty acids.

(See Annexure 1 – Serving sizes for a healthy adult)

Message

You should include variety of food from all food groups, in recommended quantities daily to avoid nutrient deficiencies.

Food plate/ meal suitable for healthy and active elders



If you are overweight, or leading a sedentary life style or having diabetes, following plate is suitable for you;







3. Making smart food choices

Box 2

- You can choose half of your daily cereals from whole grains
- Consume minimally milled or parboiled rice whenever possible. If you eat flour based meal (Eg. pittu, roti, string hoppers etc.) it is better to make it with whole grain flour.
- Apart from grains you can have pulses, legumes, yams and starchy vegetables and fruits for your main meals.
- If you are craving for bakery products it is better to get that are made from whole grains (Eg: Brown/ kurakkan/multigrain bread).

Message

Natural fibre in whole grains reduce the rate of absorption of sugar and cholesterol while preventing constipation.



Box 3

Consume more vegetables and fruits

- Brighten your plate with different colored vegetables that are red, yellow, orange, purple and dark green etc. to give you enough vitamins and minerals.
- Eat more fruits that are available locally as a snack or a dessert.
- At least five varieties of vegetables and fruits (2 vegetables, one green leaves and 2 fruits) should be consumed daily.

Message

Minimum of 400g fruits and vegetables should be included in your meals every day.



Box 4

Add eggs, fish, poultry, lean meats, pulses and sea food to your meal

- Fish supplies high quality protein and also Vitamin D, Vitamin B, omega 3 fatty acids and iron.
- Consume oily fish (e.g tuna sp., hurulla, bolla, sudaya, kumbalawa, etc.) at least two times per week as they contain heart healthy omega 3 fatty acids and Vitamin A & D.
- Eat small types of fish such as sprats that are an excellent source of Calcium.
- Meat gives good quality proteins, Vitamin B, Iron, Zinc, Copper and other minerals while helping absorption of iron in plant sources.
- Poultry without skin is better than red meat for those who have high blood cholesterol levels as it has less saturated fat and cholesterol.
- Eggs are an excellent protein source with all necessary essential amino acids, choline, iron and some vitamins. You can have one whole egg every day if you are healthy.
- Animal proteins contain all essential amino acids, vitamins, minerals and easily absorbable iron.
- Pulses are a good source of proteins with many vitamins, minerals and soluble fibre and carbohydrates.
- vegetarians should consume mixture of pulses as nutrients in pulses are less absorbent than animal proteins.

Messages

You need to add at least one protein source to each main meal.

Protein absorption from pulses is better when they are germinated.



Box 5

Have fresh milk and its fermented milk products daily

- Fresh milk and its fermented products (curd and yogurt) are one of the best sources of Calcium and Vitamin D which is important in older age.
- If you are overweight, have fat-free or low-fat milk products.
- Consume a glass of fresh milk or cup of curd or yoghurt daily.
- If you are a vegan, you can use soya milk, peanut butter instead of dairy products.
- If you have digestive problems and bloating, consume fermented milk products such as yoghurt and curd.

Message

Calcium from dairy food is easily absorbable and prevents bone loss.



Box 6

Consume meals with good fat

- Eat healthy fats (eg: avocado, nuts such as cashew, peanuts, kottan, and oily seeds such as sesame, pumpkin seeds etc.)
- Consume at least a hand full of nuts and oily seeds per day. Vegetarians/vegans may take more nuts and seeds as they supply protein.
- Eat fish daily, especially oily fish which gives you Omega 3 fatty acids to prevent heart disease.
- Minimize consumption of saturated fat (eg: butter, palm oil). Coconut oil has essential fatty acids but limit the amount you use.
- Limit deep frying and use minimum amount of oil to temper food.
- Keep away from fast food and bakery products such as biscuits, pastries, crackers and cakes prepared using saturated/trans fat whenever possible.

Message

Healthy fats protect your heart. Eat them in recommended amounts.



Box 7

Prepare your meals low in added salt and sugar.

- Vegetables, grains and fruits naturally contain salt we need and adding salt is not necessary.
- If you add salt to your meals, add it after cooking as iodine in salt destroys with heat.
- Minimize consumption of processed meat (sausages, bacon, ham), savory products (patties, rolls etc), canned and packaged soups, yeast extracts, salad dressings and sauces as they are high in salt.
- It is better to have less than one tea spoon of salt per day.
- Limit consumption of added sugar to less than six tea spoons per day.

Message

Less salt in diet controls high blood pressure.

Added sugar gives empty calories without any nutrients causing overweight and tooth decay.



Box 8

Getting plenty of water and fluids.

- Make drinking water easily accessible to drink more.
- Try to consume more healthy fluids such as king coconut, ranawara, coriander, iramusu and other herbal drinks.
- Fluids such as soups and fresh fruit juices also make you feel hydrated
- If you don't like drinking fluids, take more fruits or raw vegetables with high water content such as water melon, pineapple, cucumber, tomatoes.
- You need to drink more water if your urine is dark yellow, when you are very active or on hot days.
- Water helps you digest food, absorb nutrients from food, and then get rid of the unwanted waste.

Message

Dehydration is a common problem among elderly and water is the best source to keep you hydrated.

Try to drink at least 8-10 glasses of water and fluids in each day and it helps to loosen your stools.



Box 9

If you want you can have a healthy snack between meals

- Healthy snacking may be a piece of fruit, a cup of yogurt, boiled gram or vegetables, whole grain toast, thalaguli or you also can have handful of nuts.
- If you are going out, take along some fruit or raw vegetables in a bag.
- Better to limit snacks with fewer nutrients (eg: biscuits, chips, savoury snacks and sugar sweetened drinks).

Message

Consume nutrient rich snacks as it may prevent you having a main meal.



Some Food myths and taboos

Your beliefs on food may affect your dietary behaviors!

Belief	Explanation
Foods considered as “cold” (such as cucumber, ladies fingers, water melon, king coconut, curd, sour plantains (Ambul), green gram, kiri bath etc.) are avoided to prevent the phlegm.	If you are not allergy to these foods, you can have them.
Foods considered as “heaty” (tuna fish, tomatoes, durian, mangostin, rambuttan, gaduguddah etc.) are not good for health.	If you are not allergy to these foods, you can have them.
Nutrient rich food (fish, meat, eggs, green leaves etc.) worsens diarrhoea.	During any illness you need more nutrient dense food to enhance your immunity.
Bitter gourd is avoided during the medication or for dinner	Do not interrupt your medication and take medical advice.
Curd, yoghurt and milk lead to diarrhoea and flatulence.	Fermented dairy products (curd & yoghurt) improve your healthy gut flora and also improve gut mobility. If you do not have lactose intolerance, you can consume them.

4. Ageing and issues in eating

Older adults have special dietary needs at the same time they have issues in eating. They may not get necessary nutrients especially vitamins and minerals. (annexure II – Some important vitamins and minerals necessary for older adults).

You may also have following eating problems as you get old.

4.1 'Food do not taste good'

Are you worried about “*food does not taste good*”?

When we attain the middle age, we may start to lose taste buds. As we age, our tongue may lose most of them. Also produce less saliva and thereby reducing the solubility of the food to stimulate taste buds causing food tasteless.

Common cold or blocked nose may weaken your sense of smell. Without aroma your foods tend to be dull. Consult your doctor to treat your cold.

If you are a heavy smoker or a beetle chewer, it is better to stop smoking or beetle chewing gradually to improve your taste and appetite.

Some health problems and medications too can cause a bad taste in the mouth or a loss of taste. Talk to your doctor about possibility of changing drugs.

When we lose taste, it can cause a loss of appetite, weight loss, poor nutrition, weakened immunity, and even death.

If you feel some taste when nothing is in the mouth, consult your doctor to find out the reason.

How to overcome taste problems?

- Keep your mouth clean.
- Try local remedies like “Thambum Hodi”/ “Rasam”.
- Try using lemon juice, vinegar, spices or herbs to boost the flavour, rather than using oil and salt.
- Change cooking methods and use variety of food.
- Consult your doctor to see whether your medications affect taste.



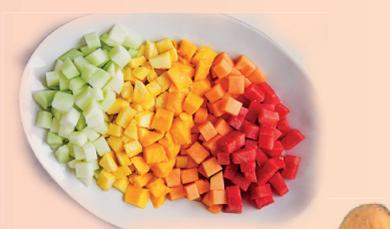
4.2 'Difficulty in chewing food'

Why chewing is difficult?

You may have tooth decay, root exposure, broken and missing teeth, poorly fitting dentures, dry mouth, mouth sores, mouth infections like thrush, mouth cancer, fractured jaw, pain in joints of the jaws, stroke or chronic conditions like Parkinson's disease, weakness of muscles and multiple sclerosis which may affect chewing.

What can we do to deal with difficulty in chewing?

- Eat softer foods or cut them into small pieces.
- Some solid food becomes easy to chew by boiling, steaming and grinding etc.
- Slowly chew as much as possible before swallowing.
- Change consistency of food from solid to semi solid or fluid.
- Remember! tea, coffee and soft drinks do not provide adequate nutrition.
- An entirely liquid diet can make the muscles in the gut shrink. So, add at least some solid particles in your meal.
- Correct your loose fitting dentures and replace missing teeth!!!
- If you're having trouble in chewing, consult your dentist/doctor.



4.3 'Sticky uncomfortable feeling of mouth or dry mouth'

Do you have sticky mouth/dry mouth?

Sticky mouth may be caused by taking several medications.

Less saliva in your mouth might cause food stucked in mouth.

Dry mouth makes swallowing and digestion difficult and may cause gum disease

What can you do for sticky/dry mouth?

- Drink plenty of liquids during the day.
- Cleaning/ rinsing your mouth frequently.
- Talk to your doctor to change your medication.



4.4 'Just not hungry' (lack of appetite)

Why don't you feel hungry?

Even if you are healthy, you may feel less hungry and full during the day. So you may take smaller meals and less snacks in between meals.

Some medications/ health problems may be the reason. Consult your doctor for a solution.

How can you improve your appetite?

- If food just isn't appealing, vary the shape, color, and texture.
- Colorful meal with variety of fruits and vegetables increases appetite.
- Look for a new recipe with vegetable, fruit or seafood you haven't tried before.
- Try being more active. In addition to the other benefits it may make you hungrier.



4.5 'Being unhappy'

Do you feel lonely or low?

When your mood is low, you will not feel hungry.

Can you be happy?

- Social or spiritual gatherings and activities improves your mental health.
- Try to make a social eating. Enjoy meals with family members or friends.
- Open up and talk about your problems with someone reliable.
- If your mood doesn't improve take medical advice.



4.6 'Choking on Food'

Coughing, talking while eating and drinking too rapidly may cause choking.

What can you do?

If you have frequent choking problems, you should pay more attention to eating!

- Avoid watching television or doing other activities while eating.
- Do not drink fluids or talk while you're eating.
- Eat slowly and do not eat lying down.
- Try to eat in the presence of someone.

If a care giver or someone around notice an older person showing his/her throat and finding it difficult to breath;

- Give upto five back blows between the shoulder blades with your hand and call for help.
- If person is having persistent chocking, seek medical attention as soon as possible.

4.7 ‘Constipation’

Chronic constipation may be due to some diseases you have or medication use and sometimes may be due to psychosocial issues. If you have constipation, you may be afraid to eat or not appealing for food.

How to relieve constipation

- **Increase your intake of food and water or fluid.**
- **Include foods that contain fiber such as fruits, vegetables, beans and whole-grains more in your meals.**
- **Try to schedule toileting after a defined meals. eg: after breakfast**
- **You may need extra fiber supplementation.**
- **If constipation persists seek medical treatment.**



5. Enjoy your cooking

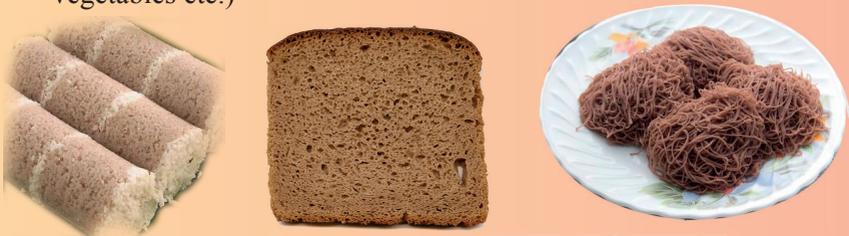
Food poisoning can be serious for older adults. Homemade food can prevent them if food is prepared and stored safely. Personal hygiene is needed to protect you from food poisoning. If possible prepare your food with family or friends to enjoy together.

5.1 Some tips to plan a healthy menu

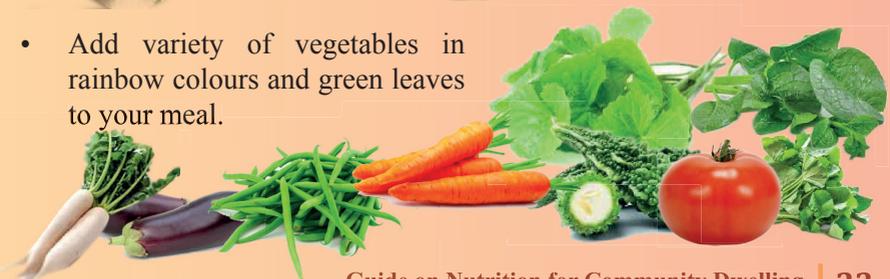
- Go for whole grain food and add minimally polished rice, kurakkan and other grains and pulses to your menu.
- For vegetarians, it is better to combine cereals (rice, kurakkan, meneri, maize and wheat) with pulses.



- If you want to eat rotti, pittu, hoppers or string hoppers, prepare them with whole grain flour or mix kurakkan flour. You also can prepare them with pulses (green gram, chickpea, cowpea, black gram and vegetables etc.)



- Add variety of vegetables in rainbow colours and green leaves to your meal.



Pressure cooked or fried small fish (sprats, herrings and anchovy etc..) can be consumed as a whole to have more calcium which helps to prevent osteoporosis.



- If you are a vegetarian and take germinated pulses and legumes for better absorption of iron.
- Before cooking meat all possible fat needs to be removed and eat lean cuts of meat or skinless chicken.
- To increase the absorption of iron in foods, add lime or lemon to meals and better to avoid taking tea or coffee with meals or immediately after meals.



- Add some vegetables to omelets to reduce absorption of cholesterol.
- Rather than deep frying food, bake, grill, steam or boil them whenever possible.
- Use coconut oil (butter, fat spread) when tempering and deep frying.
- Season your foods with lemon juice, herbs, or spices to increase the flavour.
- Use less salt when cooking. Less than a teaspoon of salt is enough for a person a day.



- Snack on locally available fruits, nuts and seeds, yoghurts.



- If you are overweight or having Diabetes Mellitus, you need to eat less energy dense food (starch and fat).
- If you have high blood pressure, eat less salt and increase your intake of fruits.



5.2 When cooking, follow 4 basic steps: clean, separate, cook, and chill.



a). Clean

- Wash your hands and utensils with soap and water before you start cooking.
- Rinse fruits and vegetables well under running water.
- Clean can lids thoroughly with soap and water before opening



b). Separate

- Keep meat or fish or eggs separated from other food.
- Store raw food separated, not mixing with cooked food in the refrigerator.
- If you use same knife and cutting board, cut vegetables and fruits first. Then wash knife and cutting board with soap and water, before cutting raw meat, poultry, and seafood.
- If you put raw meat on a plate, wash the plate in soapy water before reusing it for cooked food.
- Clean your hands before you start cutting up meat.



c). Cook

- Do not overcook vegetables or green leaves.
- Meats and seafood should be cooked well. Frozen products should be thawed well before cooking.
- Do not eat half boiled or undercooked eggs.
- Boil gravy when reheating.



d). Chill

- Your refrigerator and freezer should have optimum temperatures for meals to cool properly.
- Put food in the refrigerator/freezer within 2 hours of buying.
- Put cooked food in the fridge as soon as you prepare it. Not necessary to wait until they are cool. But enjoy them the next day for lunch or dinner after heating properly.



6. Maintaining a healthy weight

As you grow older you may be less active than your younger days and may burn fewer calories now. Your appetite may have been reduced or may eat the same amounts you were used to. At the same time, you need less energy in your old age. Therefore, you need to balance energy you take from food and beverages with the calories you burn through bodily functions and physical activity to maintain a healthy weight.

How to maintain a healthy weight?

Assessment of Body Mass Index (BMI) will show you whether your weight is healthy.

BMI can be calculated using the formula;

$$\text{BMI} = \text{Weight (Kg)} \div \text{Height}^2 \text{ (meters)}$$

BMI classification for elders

If you think that you weigh too much or too little or you have a healthy weight, regular physical activity and a healthy diet go hand in hand.

If you think that you weight too much or too little or you have a healthy weight, you can follow the instructions to maintain your body weight or you can consult your doctor/ nutritionist about your weight.

Aim	Serving size	Food tips	Physical activity
<p>To maintain the healthy weight (not to lose or not to gain weight).</p> <p>If you are physically active</p>	<p>Continue same as usual</p>	<p>Make sure you include all food groups in your daily meals in same quantity you take.</p>	<p>Do moderate aerobic physical activity at least 150 minutes per week or 75 minutes of vigorous activity per week, performed in bouts of at least 10 minutes.</p>
<p>If your activities are limited</p>	<p>Same as usual</p> <p>If your weight is gaining, reduce quantities of food containing carbohydrates and fats.</p>	<p>Use a smaller plate, bowl, or glass to help you eat and drink less.</p> <p>Stop eating, without waiting to feel full.</p>	<p>Do muscle-strengthening activities two or more days a week.</p> <p>Be as physically active as you can be.</p>

<p>To lose weight</p>	<p>Reduce quantity of food containing carbohydrates and fats.</p> <p>Eat more vegetables and green leaves.</p>	<p>Take whole grain meals with less fat.</p> <p>Use a smaller plate, bowl, or glass to help you eat and drink less.</p> <p>Stop eating without waiting to feel full.</p>	<p>Do moderate aerobic physical activity at least 300 minutes per week.</p> <p>or</p> <p>150 minutes of vigorous activity per week if your health permits or try to be active as much as possible.</p> <p>Do muscle-strengthening activities two or more days a week.</p>
<p>To gain weight</p>	<p>Increase quantity of food containing carbohydrates and proteins.</p>	<p>Eat healthy fats.</p> <p>Add healthy snacks during the day.</p>	<p>Do moderate aerobic physical activity at least 150 minutes per week.</p> <p>or</p> <p>75 minutes of vigorous activity per week, performed in bouts of at least 10 minutes.</p> <p>Do muscle-strengthening activities two or more days a week.</p>

Aerobic exercises

- Aerobic exercises include running, swimming, walking, aerobics, dancing, cycling, hiking, cardio machines etc.
- These exercises stimulate the heart rate and breathing rate.
- Aerobic exercise not only improves fitness; it also has known benefits for both physical and emotional health.



Muscle strengthening activities

Muscle strengthening activities are necessary for;

- activities of daily living
- maintaining strong bones and joint functions
- regulating blood sugar and blood pressure
- minimising stress
- maintaining a healthy weight



In your old age, you need less calories according to your physical activity status.

For a Woman

Not physically active	Moderately active	Active lifestyle
1600 calories	1800 calories	2000 – 2200 calories

For a Man

Not physically active	Moderately active	Active lifestyle
2000 – 2200 calories	2200 - 2400 calories	2400 – 2800 calories

You need to increase the calorie intake during an acute illness and during next two weeks of recovery.

Message

Remember!

Everything you eat and drink matters!!!

Be physically active as much as you can.

Annexures

Annexure I

Serving sizes for a Healthy Adult

Food Groups	Servings per day
Cereals and starchy foods	7 - 13
Vegetables and Green leaves	
Vegetables	3
Green leaves	1
Plant protein (Pulses)	3 – 4
Animal protein	
fish /lean meat	2 - 4
Egg	1
Fruits	2 – 3
Fresh milk and its fermented products	1 – 2
Nuts, oily seeds and oil	2

Food groups	1 serving size equal to:
Cereals and starchy foods	½ cup cooked rice (65 g) ½ cup cooked noodles / pasta 1 slice of bread (30 g) 2 string hoppers, medium size (10 g each) 1 hopper (25 g) ½ roti (about 9 cm diameter and 0.5 cm thick) ¼ th large pittu (3 cm height and 5 cm diameter) 1 thosai (20-25 g) ½ cup jack / bread fruit (boiled) 1 medium potato ½ cup boiled sweet potato / Manioc/ other yam

Vegetables and Green leaves	3 tbsp
Vegetables	Beans/ Murunga/ Wetakolu/ Pathola/ Dambala/ Karawila/ Tibbatu/ Elabatu/ Brinjal/ Cucumber/ Cabbage /Capsicum/ Tomato/ Keselmuwa/ Cauliflower/ Amberella/Pumpkin etc.
Root vegetables	Carrot/ Beet/ Radish/ Nokol/ Kohila/ Lotus roots etc.
Green leaves	3 tbsp Gotukola/ Kathurumurunga/ Mukunuwenna/ Spinach/ Kankun/ Anguna/ Thembu/ Sarana/ Thampala/ Murunga leaves/ Pumpkin leaves/ Carrot leaves/ Beet leaves/ Radish leaves/ Nokol leaves/ Cabbage leaves/ Passion leaves/ Manioc leaves/ Tender kohila leaves/ Onion leaves etc.
Pulses/ Fish / Egg / lean meat	
Pulses	3 tbs cooked dhal 3 tbs cooked kadala parippu 3 tbs cooked mung parippu ½ cup cooked/boiled chickpea (75 g) ½ cup cooked/boiled cowpea (75 g) ½ cup cooked/boiled mungbeans (75 g)
Fish /lean meat	30 g fish / chicken / beef/ pork / mutton 15 g dried sprats (9 – 10 sprats) 15 g dry fish (1 match box size piece)
egg	1 egg

Fruits	1 medium banana 1 small beli ½ cup anona 2 dates 4 tsp rasins	} high carb fruits
	2 cups cubed papaya 1 – 2 small guava 2 slices pine apple 1 medium mango 1 small orange 1 small wood apple 1 small apple 1 medium pomegranate 10 – 15 grapes 10- 15 jambu 1 small pear	} medium carb fruits
	veralu, lovi, uguressa, dan, , lemon, nelli , water melon	} low carb fruits
	½ medium avocado	- healthy fat fruit
Fresh milk and its fermented products	½ cup fresh milk ½ cup curd 1 yoghurt cup 15 g cheese	
Nuts, oily seeds and oil	1 tbsp full of peanuts 7 cashews 15 g gingelly seeds	
Coconut - grated	1 tbsp (10 g)	
Oil	1 tsp (5g)	

Tea cup = 200 ml

1 table spoon (tbsp) = 15 ml/g

1 tea spoon (tsp) = 5 ml / g

1 match box size = 4 cm x 3 cm x 1 cm

Annexure II

Some important Vitamins and Minerals necessary for older adults

Nutrient	Importance	Some sources of food
Calcium	Prevents bone loss, building and maintaining strong bones	Dairy products, sprats, dark greens vegetables, green leaves, fortified cereals and fruit juices, canned fish with soft bones
Copper	Prevent cardiovascular disease and osteoporosis, improve immune and nerve function, need to form collagen	Most of nuts (esp. cashew), chickpea, oysters, cereals, meat, fish, dark chocolate, green leaves, liver & organ meats
Iron	Need to produce RBC, DNA & ATP, Prevent anemia	Red meat and meat products, liver, fortified cereals and grains, dark green leaves and vegetables, soya bean, chickpea, munge beans, cowpea, dried fruits
Magnesium	Good for brain function and mood, reduce risk of depression, lower risk of type 2 Diabetes, lower blood pressure in elevated levels, proper functioning of immune system, for healthy heart, keep bones strong	Fatty fish, dark chocolate, nuts and seeds, avocado, green leafy veg., meat, brown rice, whole grain bread
Potassium	Lower blood pressure, reduce risk of kidney stones, important for cell function, keep bones strong	Fruits and vegetables, esp. banana, prunes, plums, potato with skin and beans
Folate	Well functioning of nervous system, Improve mood, cognitive and social function	Green leaves, beans, and peas, fruits and vegetables, fortified breakfast cereals, liver

Vitamin B12	To form red blood cells and DNA, Well functioning of nervous system.	Fish, meat, poultry, egg, milk and milk products and sea food, fortified cereals
Vitamin C	Serve as an antioxidant, Boosting immune function, increasing wound healing, prevent atherosclerosis, lower risk of heart disease and certain cancers, support to produce energy, produce certain mood-enhancing brain chemicals (neurotransmitters)	Fruits and vegetables, esp. citrus fruits, green leaves
Vitamin D	Absorb calcium, Maintain bone density, prevent osteoporosis	Milk and milk products, salmon, tuna and egg, fortified cereals, yoghurts and juices, exposed to morning sunlight
Vitamin E	Serve as an antioxidant, Improve immune response, resistance to infections	Vegetable oils, nuts, green leafy vegetables
Fiber	Lower the risk of heart disease and type II diabetes, promote healthy digestion	Fruits and vegetables, whole grain, beans and peas, nuts
Omega 3 fatty acid	Reduce symptoms in rheumatoid arthritis, slow progression of age related macular degeneration, reduce risk of Alzheimer's disease, keep brain shaper	Sea foods – salmon, tuna, sardines and mackerel (hurulla, sudaya, kumalawa, thodaya), soybeans, walnuts, flaxseed, canola oil

Annexure III Sample menus

Menu	01	02	03	04	05	06	07
6.00 a.m.	Fresh milk / milk tea						
Breakfast	Chick pea/ Cow-pea/ Mung beans/ Scraped coconut/ Maldive fish sam-bolaya	Milk rice, fish curry, seenisambolaya / kattasambolaya	Bread, egg-omlette, mixed vegetable curry	String hoppers, fish white curry / egg curry/chicken curry, pol sambolaya	Mung beans milk rice, Lunumiris with maldive fish	Rice dried fish / sprats tem- pered/curry any kind of vegetable	Dosai with mixed vege- table curry & coconut sam- bolaya, soya tempered or curry
10.00 a.m.	Lavariya/helapa/ pan cake/ walihalapa, milk tea / plain tea	Yoghurt with a fruit	Kola kanda/ Sago drink	Samaposha aggala milk tea/ plain tea	Banana, sesame pellets, milk tea/ plain tea	Sesame pellets / semolina, herbal drinks like belimal, ranawara etc.	Yoghurt with a fruit
Lunch	Rice/ two vegetables + green leafy vegetable or leafy salad						
	fish	chicken	sprats/ dried fish	egg	fish	soya bean	chicken
Dessert	Papaw / mango/ripe jak/ water melon/avocado/wood apple /pine apple/ fruit salad/ banana						
4.00 p.m.	Sesame pellets, banana, milk tea/ plain tea	Cake/ cream cracker biscuit, plain tea	Vegetable soup	Samolima/ wali- thalapa/lavariya/ pan cake/ milk tea/ plain tea	Vegetable or chicken soup	Sandwitches , milk tea/ plain tea	Samaposh aaggala, milk tea/ plain tea
Dinner	Rice, vegetable curry, dried fish tempered,salad	Pittu / fish roti/ soya / egg/chicken curry	Noodles, veg- etable, chicken curry	Bread, coconut sam- bolaya,mixed vegetable curry, fish/ sprat curry	Dosai/Idli , coco- nut sambolaya, mixed vegetable curry, soya meat tempered	String hop- pers, coconut sambola, fish /soya /egg/ chicken curry	Rice, salmon/ egg curry, a vegetable
Dessert	banana / papaw / water melon / guava / mango /pine apple / yoghurt						
Vegetarians	Soya (TVP), beans, wing beans, dhal, mung beans, chick pea, cowpeas boiled or curry. Bean curd / tofu can be given instead of meat/fish						

References

- https://www.cdc.gov/salt/pdfs/sodium_tips_older_adults.pdf accessed on 28/12/2017
- What's On Your Plate? The National Institute on Aging guide to healthy eating.
- Visit to see how much to eat from each food group based on your age, sex, and physical activity level.

Contributors

- **Focal Point** - Dr. Lakmini Magodaratne, Actg. Director/ Nutrition Nutrition Division, Ministry of Health

Authors

- Dr. Anoma C.M. Basnayake, Consultant Community Physician, Nutrition Division, Ministry of Health
- Dr. Shiromi Maduwege, Consultant Community Physician, Youth, Elderly & Disable, Ministry of Health
- C.S Ilangame, Planning & Programming Assistant, Registered Nutritionist (CMCC), Nutrition Division, Ministry of Health
- Ruksani Semasinghe, Development Officer, Registered Nutritionist (CMCC), Nutrition Division, Ministry of Health
- T. Suntheravathney, Development Officer, Registered Nutritionist (CMCC), Nutrition Division, Ministry of Health
- **Tamil Translation** - T. Suntheravathney, Development Officer, Registered Nutritionist (CMCC), Nutrition Division, Ministry of Health

Technical Contribution

1. Dr. L Gamlath, Former Deputy Director General, Ministry of Health
2. Dr. Rasanjali Hettiarachchi, Former Director Nutrition, Ministry of Health
3. Dr Ananda Jayalal, Former Director Youth, Elderly & Disable, Ministry of Health
4. Dr. V.T.S.K Siriwardene, Former Director Non Communicable Diseases, Ministry of Health
5. Dr. Renuka Jayatissa, Consultant Clinical Nutritionist, Head Nutrition Unit, Medical Research Institute
6. Dr. Shiromi Maduwege, Consultant Community Physician, Youth, Elderly & Disable Unit, Ministry of Health

7. Dr. Chiranthika Vithana, Consultant Community Physician, Adolescent and Youth Health Unit, Family Health Bureau
8. Dr. Bhanuja Wijethilake, Consultant Community Physician, Nutrition Division, Ministry of Health
9. Dr. Yasoma Kumari Weerasekara, Consultant Community Physician, Nutrition Division, Ministry of Health
10. Dr. Monika Wijeratne, Consultant Community Physician, PDHS Office (WP)
11. Dr. Virginie Mallawaarachchi, National Professional Officer - Nutrition, World Health Organization
12. Dr. Sajani Nadeeka, Registrar, Nutrition Division - Community Medicine, Ministry of Health
13. Dr. Chathurani Wickramasinghe, Registrar- community Medicine, Nutrition Division, Ministry of Health
14. Dr. Dilusha Udugama, Registrar - Community Medicine, Nutrition Division, Ministry of Health
15. Dr. Kanishka Athukorala, Registrar - Community Medicine, Nutrition Division, Ministry of Health
16. Dr. Samantha Wijewardene, Registrar - Community Medicine, Nutrition Division, Ministry of Health
17. Dr. Chandanee Withana, Medical Officer, Nutrition Division, Ministry of Health
18. Dr. Erandi Weerasekara De Silva, Medical Officer, Nutrition Division, Ministry of Health
19. Dr. J.R.G. Mahipala, Medical Officer, Nutrition Division, Ministry of Health
20. Dr. C.C.Y Abewardena, Medical Officer, Nutrition Division, Ministry of Health
21. Dr. Nipuni Ameresekara, Medical Officer, Nutrition Division, Ministry of Health
22. Piyarathne Panawala, President, Elderly Society

23. T. Tharmaseelan, Assistant Director, Nutrition Division, Ministry of Health
24. K.A.N.C.S Kuruwita, Assistant Director, Nutrition Division, Ministry of Health
25. R.M.L.R. Thilakarathne, Nutritionist, Nutrition Division, Ministry of Health
26. A.D.D.C. Athauda, Nutritionist, Nutrition Division, Ministry of Health
27. C.S. Ilangamge, Planning & Programming Assistant, Registered Nutritionist(CMCC), Nutrition Division, Ministry of Health
28. Sajeewani Mirihagalla, Development Officer, Registered Nutritionist (CMCC), Nutrition Division, Ministry of Health
29. Ruksani Semasinghe, Development Officer, Registered Nutritionist (CMCC), Nutrition Division, Ministry of Health
30. T. Suntheravathney, Development Officer, Registered Nutritionist(CMCC), Nutrition Division, Ministry of Health
31. Dharsani Kumari, Development Officer, Nutrition Division, Ministry of Health